

# Congestion in Washington

**Charlie Howard**

Director, Strategic Planning and  
Programming

**Michael Cummings**

Manager, Urban Planning Office

Commission Retreat

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**Washington State  
Department of Transportation**

On average, Washington does not have a congestion problem

- We have enough roadway capacity in Washington to accommodate all trip demand.
- In urban corridors, we have enough roadway capacity, in general, to accommodate all trip demand, even at peak periods.

BUT, it's not about averages – it's about where people want to go and when they want to travel.

The main policy question is: How much capacity do we add to accommodate peak hour or peak period congestion?

We have to be mindful of the HOV dilemma: most of the day, it's underused.

First, Some Congestion 101 Review Background

# Congestion Defined

“Excess delay due to traffic interference”

Recurring Congestion:

- Regularly occurs at the same spot or corridor due to too many vehicles

Non-recurring Congestion:

- Occurs in response to an incident: stalled car, accident, enforcement activity, weather, traffic spike, etc.

# The Three Dimensions of Congestion

- **Extent:** Where the roadway is congested
- **Duration:** How long congestion lasts
- **Severity:** How much delay is experienced

# Where do we get congestion data?

- King and a small part of Snohomish County Freeways: The freeways are outfitted with traffic detection loops – we have massive amounts of measured data 24/7: volumes and traffic density (used to calculate speed, delay and travel time).
- Spokane: Travel time monitoring program uses transponders and readers to collect speed and travel time on major regional freeways and arterials.
- Everywhere else: it's from a model that uses standard relationships to convert volume and capacity into speeds, delay and travel times.

For forecast data, it all comes from a travel demand model.

# “If you add freeway capacity, it will just fill up” : The Concept of Triple Convergence\*

\*As described by Anthony Downs

In response to new capacity, traffic moves:

1. From other time periods back toward the peak
2. From other routes back toward the freeway
3. From transit and carpools back towards SOV

The result:

- The peak is always crowded, and if peak congestion is your measure of success, you'll never improve congestion.
- Peak measures ignore real improvements to off peak direction, improvement in off peak periods, improvements on other routes, and even less delay in the peak direction itself.



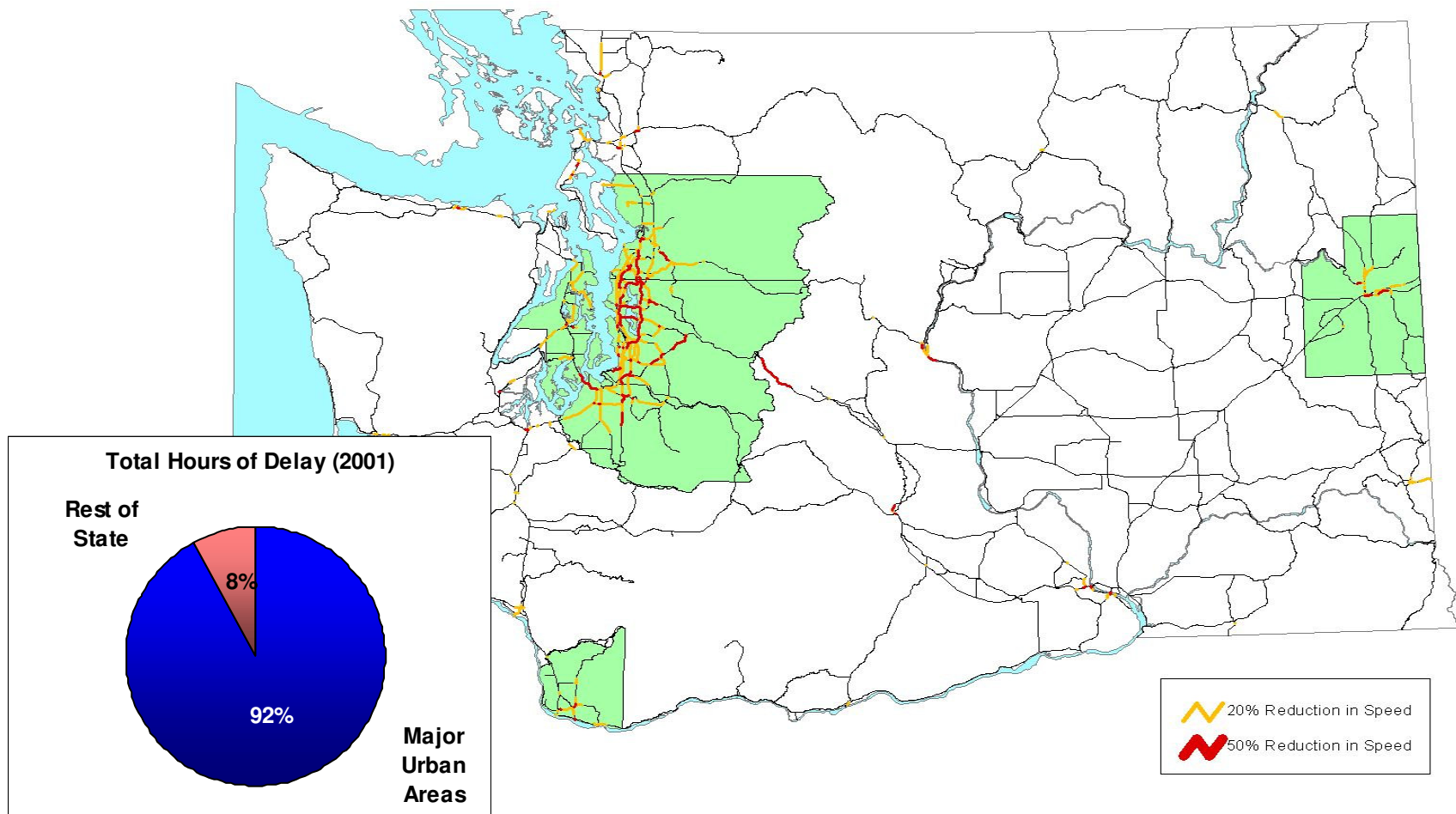
So, what do we know?

# Sources of Congestion Analysis Data

- The Legislature funded a major congestion relief analysis, covering Puget Sound, Vancouver and Spokane. This analysis is providing a wealth of data on growth plans, the resulting travel demand, and congestion levels both now and in the future in these three major urban areas.
- WSDOT is augmenting this analysis with a congestion analysis on state highways in other parts of the state.
- The following information reflects preliminary results from these analyses.

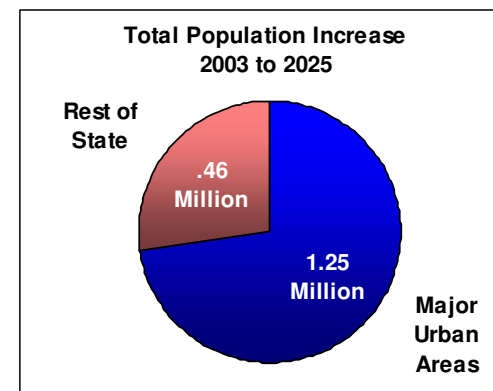
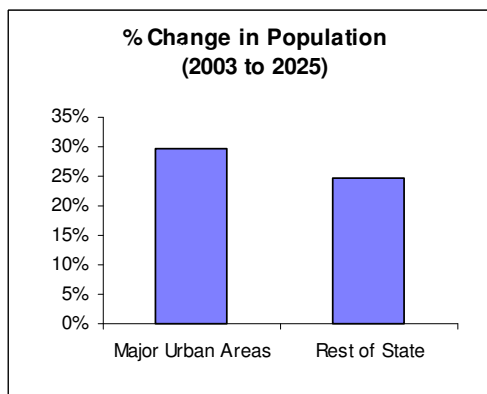
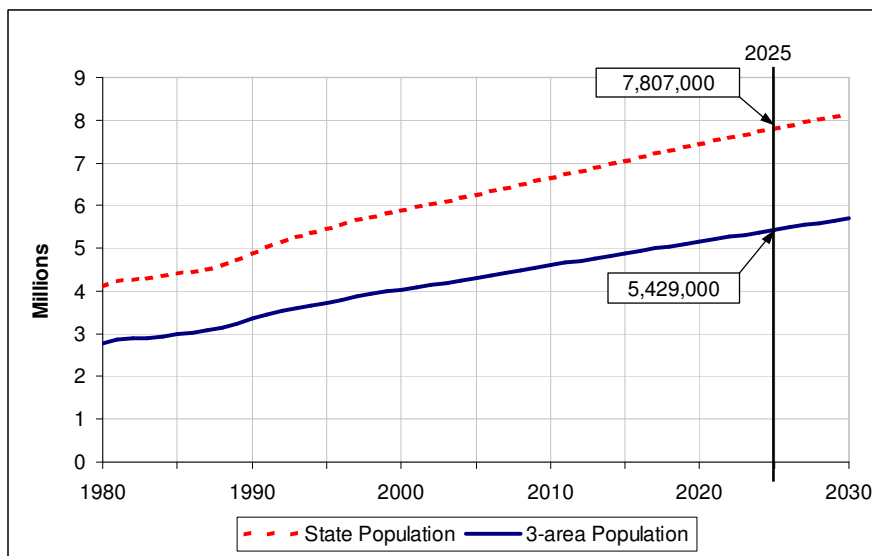
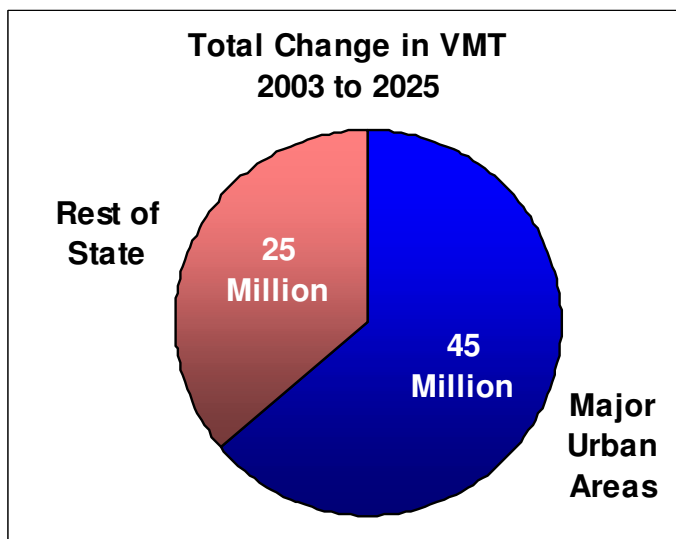
# Congestion Today

- Occurs primarily in the major urban areas: Puget Sound, Vancouver and Spokane.

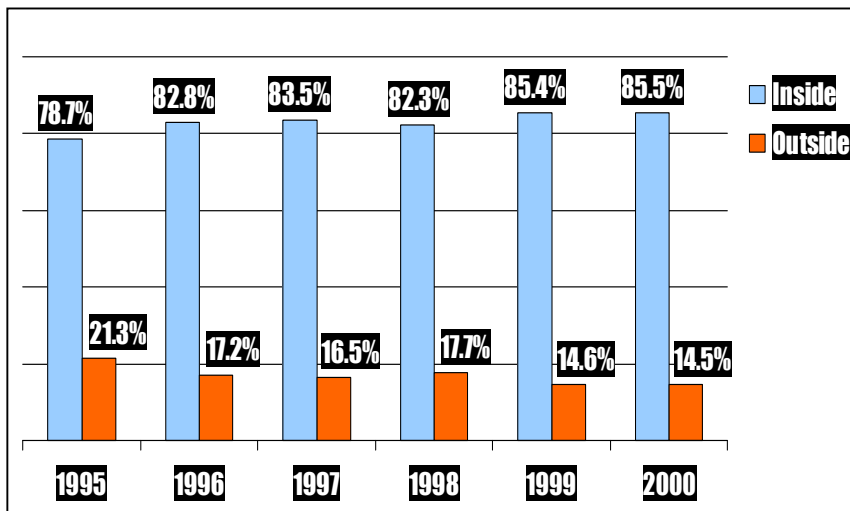


# Washington State is Growing

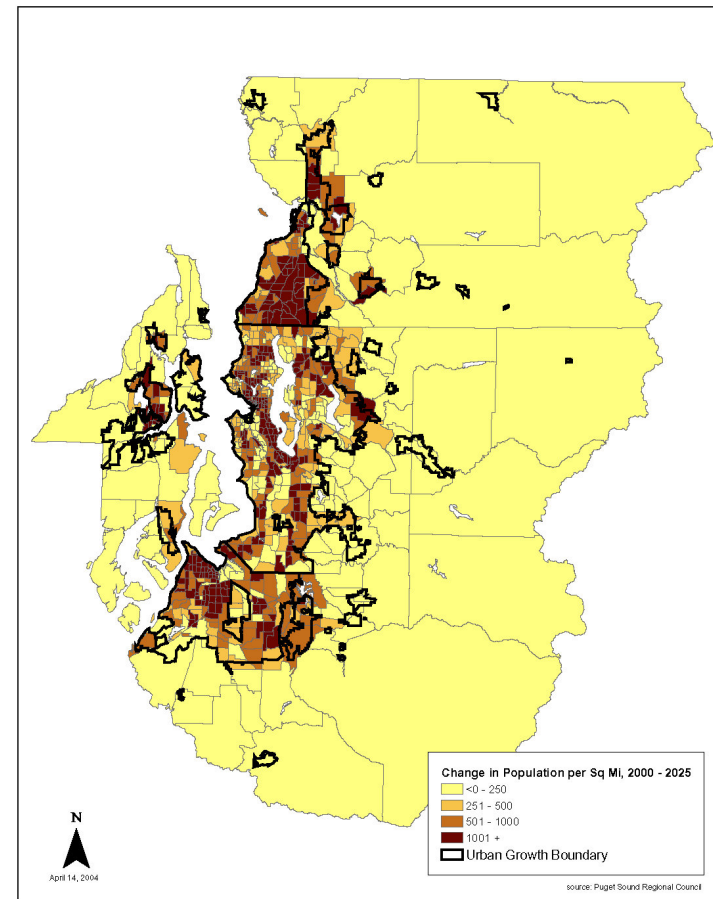
- 70% of growth will occur in the major urban areas.
- Job growth and other factors are bringing growth to the major urban areas.



# Growth management is focusing growth within the Urban Growth Boundaries.



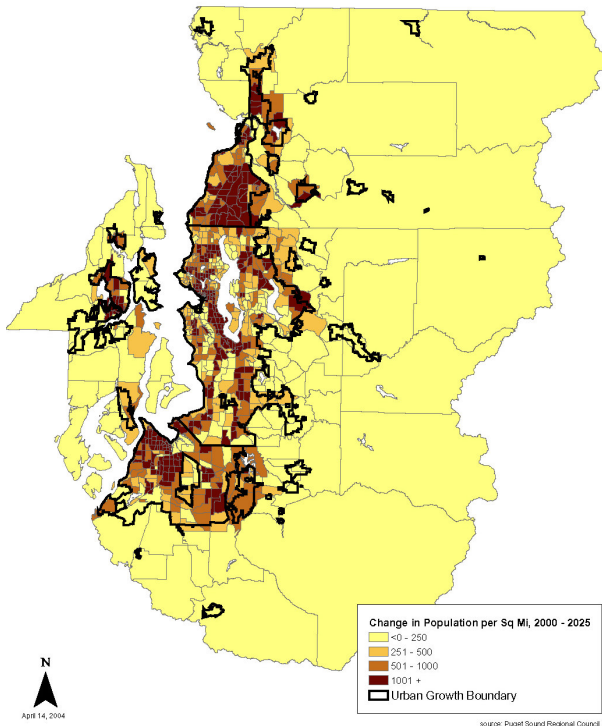
**Puget Sound Region Housing Permits Issued Inside and Outside UGAs, 1995-2000**



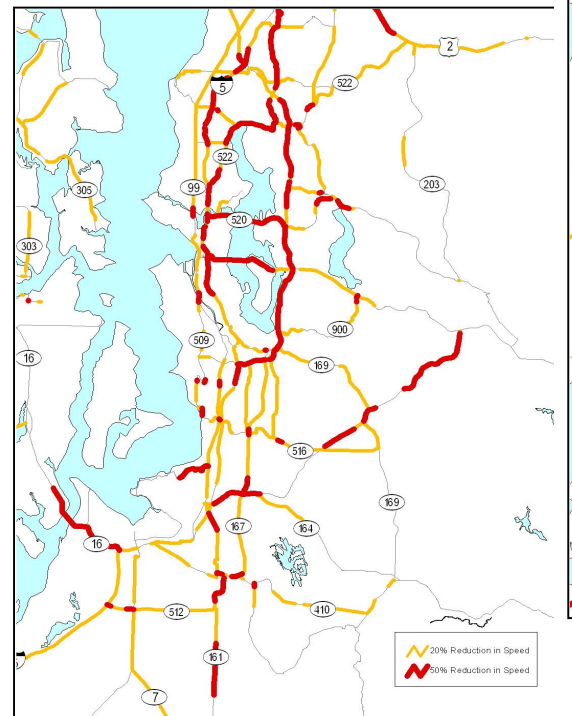
**Puget Sound Urban Area Population Change from 2000 to 2025**

# Puget Sound 2025 Forecast

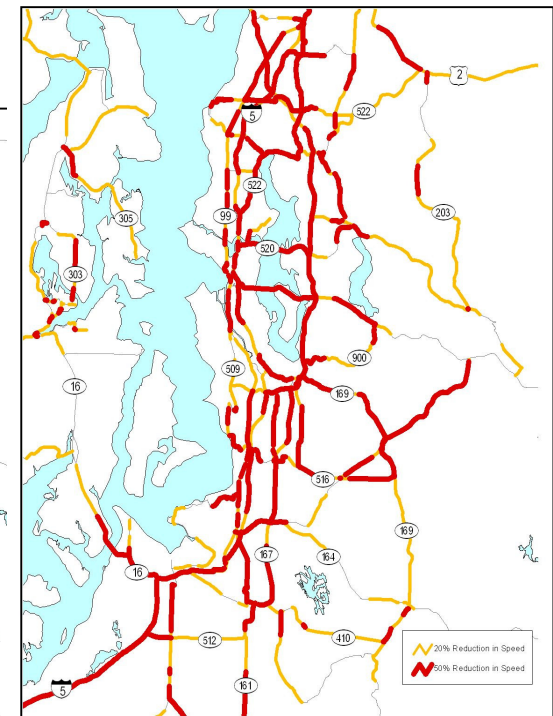
- Hours of congestion delay will increase from the 325,000 hrs per day today to 1.3 million hrs per day.
- Congestion will increase truck delays from 37,000 hours per day in 2004 to 130,000 hours per day.



**Puget Sound Urban Area  
Population Change from  
2000 to 2025**



**Puget Sound Urban Area  
State Highway Congestion  
Today**

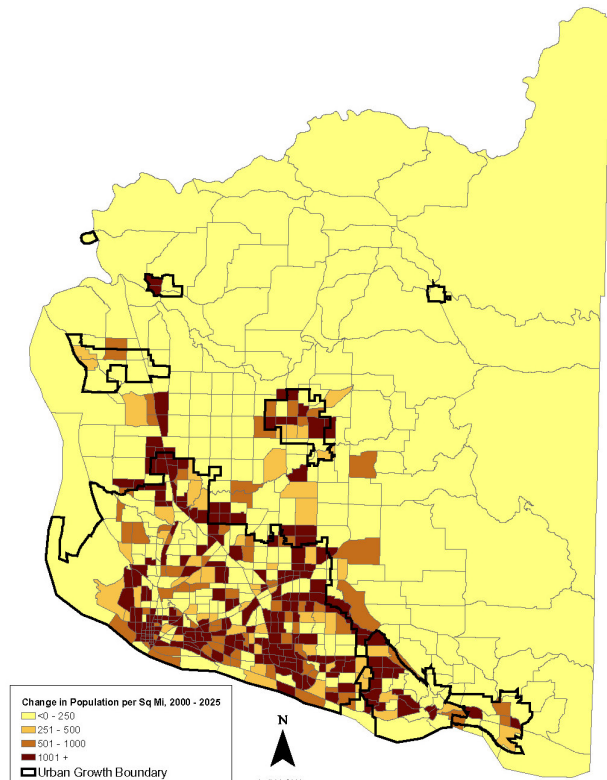


**Puget Sound Urban  
Area State Highway  
Congestion 2025**

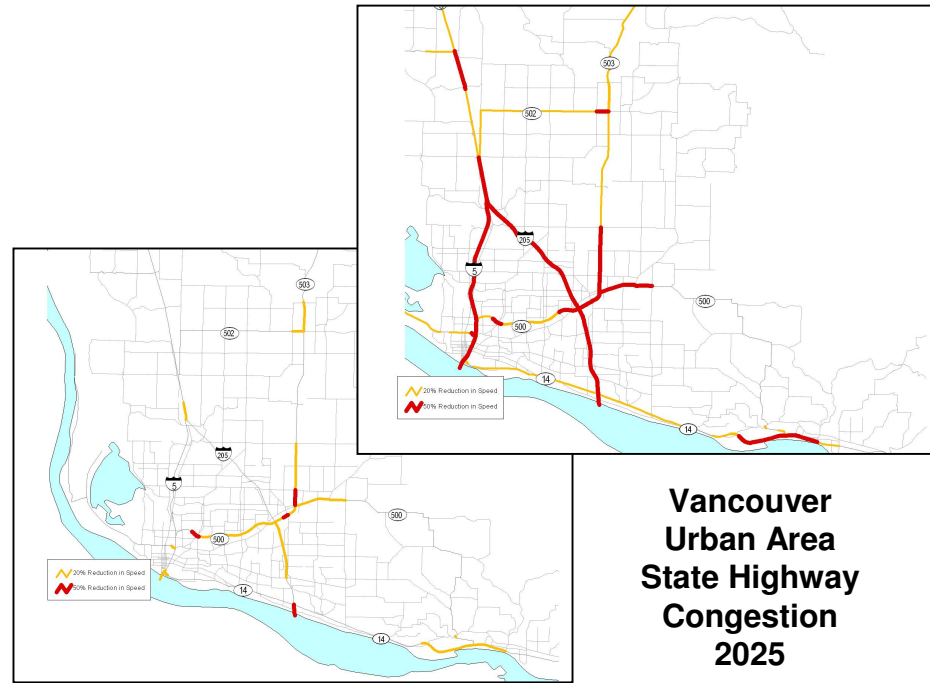
# Vancouver 2025 Forecast

- Congested highways will increase from the 25 miles today to over 85 miles
- almost 70% of all state highways in the region.

**Vancouver Urban Area Population  
Change from 2000 to 2025**



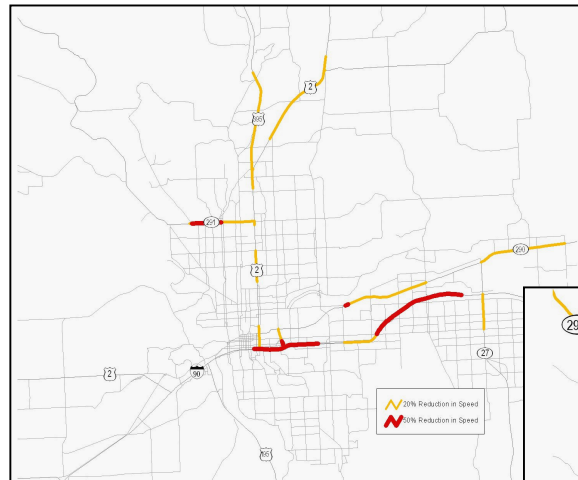
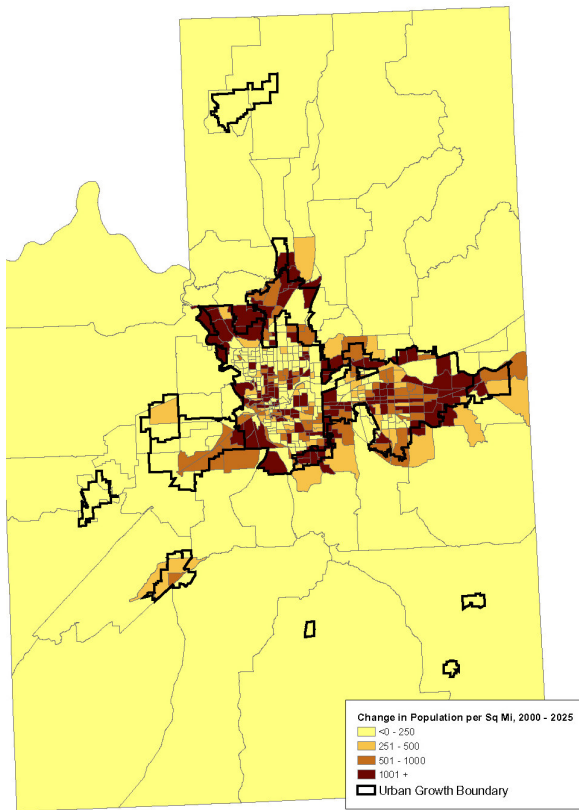
source: Southwest Washington Regional Transportation Council



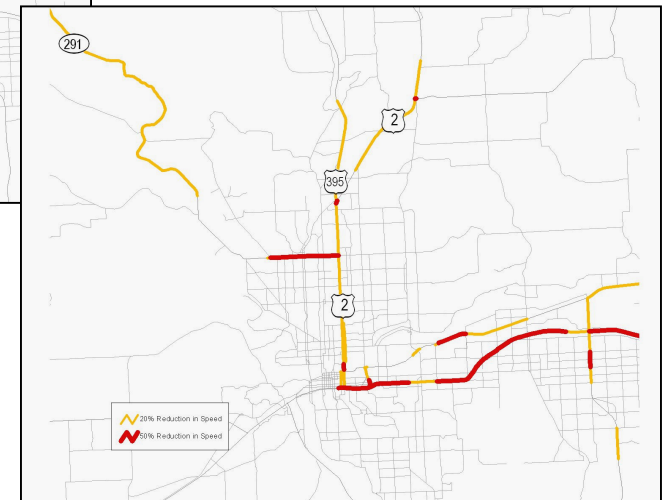
# Spokane 2025 Forecast

- Congested highways will increase from the 30 miles today to over 100 miles
- over 40% of all state highways in the region

**Spokane Urban Area Population  
Change from 2000 to 2025**



**Spokane Urban Area State  
Highway Congestion Today**

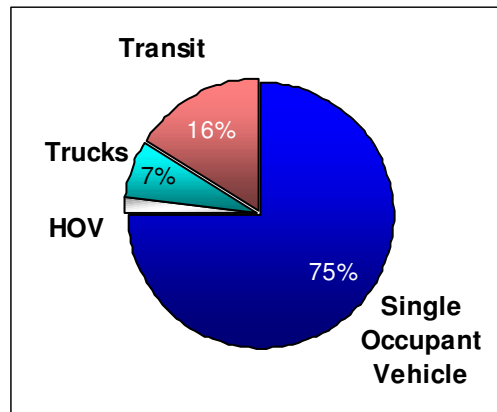


**Spokane Urban Area State Highway  
Congestion 2025**

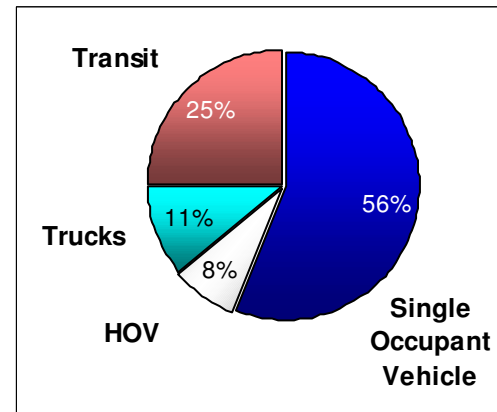


# Transit 2025 Forecast

- Transit use will increase in the major urban areas.
  - Puget Sound: over 25% of all peak period trips crossing the Seattle Ship Canal will use transit



**Today**



**2025**

**Travel southbound into Seattle on all major facilities**

# SR 520 Example: How do we Address Increasing Demand?

*Unconstrained Trips Across Lake Washington  
2025 Daily Volumes*



**Legend**  
### 2025 Unconstrained Daily Demand  
(###) 2002 Daily Volumes  
% Percentage, by route, of total daily volumes across and around lake

# What will the Congestion Analysis tell us?

- What are the implications of growth management plans on future travel demands?
- What roadway, transit and pricing strategies can be used to accommodate planned growth?
  - What do they look like?
  - What are the benefits?
  - What are the costs and impacts?
- What strategies are financially realistic?
- How can these strategies be used in developing the Washington Transportation Plan?

# Major Policy Issues

- What does growing congestion mean for Washington?
  - How long before congestion levels severely impact our quality of life and our economy?
  - How can we keep growth inside the urban growth boundary if the transportation system within the boundary cannot accept any more trips?
  - How does growing freeway congestion affect neighborhood livability?
  - What does growing congestion mean for freight movement?
- What can we afford to do?
  - All indications are that a full build out to meet demand is not only extremely expensive, but would have severe impacts on communities and the natural environment.
  - Can a more focused capital plan which targets chokepoints and bottlenecks demonstrate adequate benefits?
  - How should highway expansion fit with transit investment?
  - What's the role of operational strategies and pricing?